

The Influence of Eelgrass On Currents And Waves in the Nearshore Region

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We are investigating the interaction of the eelgrass *Zostera marina* with waves and currents in the nearshore region of Puget Sound. Our interests include the influence of current or wave damping on sediment resuspension and transport, the ecological implications of *Z. marina*'s ability to modify its environment, and seasonal variability in the canopy-flow interaction. An initial study was conducted in July 2004 in a subtidal meadow in the San Juan Islands. Eelgrass at the site is much longer (maximum leaf length 1.5 m) than in other estuaries where eelgrass-flow interactions have been studied. Grain size of bottom sediments was measured within and outside the meadow to test for differences in sedimentation. Time-series measurements show that current velocities 60 cm above the seafloor were significantly lower within the canopy than outside. Underwater digital video recorded the posture of the eelgrass leaves and showed significant deflection by currents, even though measured tidal currents were less than 10 cm/s and wave energy was negligible. The length of the blades combined with their flexibility creates a range of interactions between the vegetation and near-bed flows as tidal and wind conditions vary. We will briefly discuss potential implications of this variation for benthic dwelling fauna.